

## **What To Do Before the Job Starts**

**Establish a safety and health program** to include systematic policies, procedures and practices to protect employees from, and allow them to recognize, job-related safety and health hazards.

**Develop safety checklists** and take into account the following:

Traffic  
Nearness of structures and their conditions  
Soil  
Surface and ground water  
The water table  
Overhead and underground utilities  
Weather

**Determine the estimated location of utility installations** - sewer, telephone, fuel, electric, water lines, etc. - and call the Tennessee One-Call System at (800) 351-1111 at least three, but not more than 10, working days before digging begins.

**Obtain and read the TOSHA standards** on Trenching and Excavation (29 CFR 1926 Subpart P).

**Obtain cooperation** from supervisors, employee groups (unions), and individual employees.

**Provide warning vests** or other suitable garments, marked with or made of reflectorized or high-visibility material, to employees who are exposed to public vehicular traffic.

**Train employees** who will operate equipment on how to be fully alert to hazards.



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## **Trenching & Excavation**



**Special Emphasis Program**



## Tennessee OSHA's Special Emphasis Program on Trenching & Excavation

Because of a continuing incidence of trench and excavation collapses and accompanying loss of life, in October of 1997 TOSHA placed renewed importance on its Special Emphasis Program on Trenching and Excavation. Trenching and excavation work creates extremely dangerous hazards to workers. Yet compliance with TOSHA construction standards applicable to such operations is sometimes bypassed because of economic pressures, time constraints, belief that compliance is unnecessary, or an expectation that these short-term operations will be completed before an accident can occur.

Under this Special Emphasis Program, all TOSHA compliance and consultative services personnel are instructed to be on the lookout for trenching or excavation work sites. Personal observation, reports of imminent danger, fatality/catastrophe reports, safety and health agency referrals, employee complaints, and media reports are also used to locate trenching and excavation work. Each occurrence is handled with the appropriate intervention by TOSHA.



### Hazards on the Excavation Site

Excavation workers are exposed to many hazards, but the chief hazard is **cave-ins**. TOSHA requires that all employees exposed to potential cave-ins be protected by sloping or benching the sides of the excavation, supporting the sides of the excavation, or placing a shield between the sides and the work area.

In addition to cave-in hazards, workers must be protected from exposure to **falls, falling loads, and mobile equipment**. Restraining devices, barricades, and warning systems can be used to keep objects and people from the edge of the trench.

Employees are prohibited from working in excavations where **water** has accumulated.

Where **atmospheric hazards** may exist or develop in an excavation, the competent person must test the air and provide proper controls and ensure emergency rescue equipment is readily available.

Safe **access and egress** to all excavations must be available.

#### "Shield (shield system)"

A structure that is able to withstand the forces imposed on it by a cave-in and thereby protect employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Additionally, shields can be either premanufactured or job-built in accordance with 1926.652(c)(3) or(c)(4). Shields used in trenches are commonly referred to as "trench boxes" or "trench shields."

### Brief Summary of Requirements

Where a trench or excavation that is to be occupied by a worker is **five feet deep or greater**:

1. The sides of the trench or excavation must be protected from "cave-in" by one of the following:
  - a. Sloping (at the appropriate angle for the soil type or 1 1/2 horizontal : 1 vertical);
  - b. Shoring (normally with metal and hydraulic approved equipment); or
  - c. Inserting a trench box in the trench;
2. Excavated dirt must not be within two feet of the trench;
3. Water in a trench or excavation makes it unstable. Employees shall not occupy the trench or excavation unless water is being removed;
4. Employees in the trench or excavation must wear hard hats.
5. A ladder must be nearby (within 25 feet) for egress from the trench or excavation; and
6. A competent person must be present. This person must
  - a. know the requirements of the trenching standards (29CFR1926 Subpart P) - including soil types (A, B, C); and
  - b. have the authority to stop and/or make necessary changes in the operation to make it safe.